



**2017-2018 PROGRAM REQUIREMENTS**  
**Degree: Bachelor of Science**  
**Major: Environmental Science and Technology**

**About This Major . . .**

We educate students in the science, protection, and restoration of our natural resources—air, water, land, and ecosystems. Students develop a foundation in biology, chemistry, mathematics, statistics, and communication skills, then apply this knowledge to the study and solution of environmental problems. We balance theory with hands-on practice, and include considerable work outdoors in our spectacular local environment. Students choose either the Pollution Monitoring & Control option, which focuses on pollution prevention as well as investigation and cleanup, or the Ecosystem Restoration option, which focuses on strategies for managing natural resources. Students complete the program with our Capstone course, in which they work in small groups on real-life projects for an off-campus client. Each group plans and implements a project and presents the final results to its client. In addition to providing students with a chance to showcase the knowledge and abilities they have acquired through their studies, students learn how to deal with the challenges of real-life project work.

Our graduates take positions as environmental professionals with consulting firms, industry, and government agencies (e.g., U.S. Bureau of Land Management, U.S. Geological Survey, and U.S. Army Corps of Engineers). Some continue their studies in graduate school (e.g., Colorado School of Mines, Colorado State University, University of Denver).

For more information on what you can do with this major, go to <http://www.coloradomesa.edu/career/whatmajor.html>.

All CMU baccalaureate graduates are expected to demonstrate proficiency in critical thinking, communication fluency, quantitative fluency, and specialized knowledge/applied learning. In addition to these campus-wide student learning outcomes, graduates of this major will be able to:

1. Demonstrate an understanding of terminology, concepts, theories, and practices in environmental science. (Specialized Knowledge)
2. Demonstrate the ability to design an environmental study. (Applied Learning)
3. Demonstrate the ability to analyze quantitative environmental data, effectively translate data into graphs or tables, and interpret results. (Quantitative Fluency)
4. Demonstrate the ability to use appropriate tools, technology, and methods for measuring and analyzing environmental data. (Applied Learning)
5. Identify and evaluate assumptions, hypotheses, and alternative views on environmental problems, then articulate implications and form conclusions. (Critical Thinking)
6. Construct an organized argument (oral and written) supported by current research on a technical issue in environmental science appropriate for a specialized audience. (Communication Fluency)

**Advising Process and DegreeWorks**

This document is intended for informational purposes to help determine what courses and associated requirements are needed to earn a degree. The suggested course sequencing outlines how students could finish degree requirements. Some courses are critical to complete in specific semesters, while others may be moved around. Meeting with an academic advisor is essential in planning courses and altering the suggested course sequencing. It is ultimately the student's responsibility to understand and fulfill the requirements for her/his intended degree(s).

DegreeWorks is an online degree audit tool available in MAVzone. It is the official record used by the Registrar's Office to evaluate progress towards a degree and determine eligibility for graduation. Students are responsible for reviewing their DegreeWorks audit on a regular basis and should discuss questions or concerns with their advisor or academic department head. Discrepancies in requirements should be reported to the Registrar's Office.

## **Graduation Process**

Students must complete the following in the first two months of the semester prior to completing their degree requirements:

- Review their DegreeWorks audit and create a plan that outlines how unmet requirements will be met in the final semester.
- Meet with their advisor and modify their plan as needed. The advisor must approve the final plan.
- Submit the "Intent to Graduate" form to the Registrar's Office to officially declare the intended graduation date and commencement ceremony plans.
- Register for all needed courses and complete all requirements for each degree sought.

Submission deadlines and commencement details can be found at <http://www.coloradomesa.edu/registrar/graduation.html>.

If a student's petition for graduation is denied, it will be her/his responsibility to consult the Registrar's Office regarding next steps.

## **INSTITUTIONAL DEGREE REQUIREMENTS**

The following institutional degree requirements apply to all CMU baccalaureate degrees. Specific programs may have different requirements that must be met in addition to institutional requirements.

- 120 semester hours minimum.
- Students must complete a minimum of 30 of the last 60 hours of credit at CMU, with at least 15 semester hours in major discipline courses numbered 300 or higher.
- 40 upper-division credits (an alternative credit limit applies to the Bachelor of Applied Science degree).
- 2.00 cumulative GPA or higher in all CMU coursework.
- A course may only be used to fulfill one requirement for each degree/certificate.
- No more than six semester hours of independent study courses can be used toward the degree.
- Non-traditional credit, such as advanced placement, credit by examination, credit for prior learning, cooperative education and internships, cannot exceed 30 semester credit hours for a baccalaureate degree; A maximum of 15 of the 30 credits may be for cooperative education, internships, and practica.
- Pre-collegiate courses (usually numbered below 100) cannot be used for graduation.
- Capstone exit assessment/projects (e.g., Major Field Achievement Test) requirements are identified under Program-Specific Degree Requirements.
- The Catalog Year determines which program sheet and degree requirements a student must fulfill in order to graduate. Visit with your advisor or academic department to determine which catalog year and program requirements you should follow.
- See "Requirements for Undergraduate Degrees and Certificates" in the catalog for a complete list of graduation requirements.

## **PROGRAM-SPECIFIC DEGREE REQUIREMENTS**

- A "C" or higher is required in all courses listed as major requirements.

### **ESSENTIAL LEARNING REQUIREMENTS (31 semester hours)**

See the current catalog for a list of courses that fulfill the requirements below. If a course is an Essential Learning option and a requirement for your major, you must use it to fulfill the major requirement and make a different selection for the Essential Learning requirement.

**English** (6 semester hours, must receive a grade of "C" or better and must be completed by the time the student has 60 semester hours.)

- ENGL 111 - English Composition (3)
- ENGL 112 - English Composition (3)

**Mathematics** (3 semester hours, must receive a grade of "C" or better, must be completed by the time the student has 60 semester hours.)

- MATH 113 -College Algebra (4\*)  
\*3 credits apply to the Essential Learning requirements and 1 credit applies to elective credit

**Humanities** (3 semester hours)

- Select one Humanities course (3)

**Social and Behavioral Sciences** (6 semester hours)

- Select one Social and Behavioral Sciences course (3)
- Select one Social and Behavioral Sciences course (3)

**Natural Sciences** (7 semester hours, one course must include a lab)

- Select one Natural Sciences course (3)
- Select one Natural Sciences course with a lab (4)

**History** (3 semester hours)

- Select one History course (3)

**Fine Arts** (3 semester hours)

- Select one Fine Arts course (3)

### **OTHER LOWER-DIVISION REQUIREMENTS**

**Wellness Requirement** (2 semester hours)

- KINE 100 - Health and Wellness (1)
- Select one Activity course (1)

**Essential Learning Capstone** (4 semester hours)

Essential Learning Capstone must be taken after completion of the Essential Learning English and Mathematics requirements, and when a student has earned between 45 and 75 hours.

- ESSL 290 - Maverick Milestone (3)
- ESSL 200 - Essential Speech (1)

### **FOUNDATION COURSES (9-10 semester hours)**

Complete all courses in one of the following options:

Option One:

- CHEM 121 - Principles of Chemistry (4)
- CHEM 121L - Principles of Chemistry Laboratory (1)
- CHEM 123 - Introduction to Environmental Chemistry (4)

Option Two (recommended for students who plan to attend graduate school):

- CHEM 131 - General Chemistry I (4)
- CHEM 131L - General Chemistry I Laboratory (1)
- CHEM 132 - General Chemistry II (4)
- CHEM 132L - General Chemistry II Laboratory (1)

**BS, ENVIRONMENTAL SCIENCE AND TECHNOLOGY REQUIREMENTS** (57 semester hours, must pass all courses with a grade of “C” or higher)

**Introduction to Environmental Science** (3-4 semester hours)

Complete all courses in one of the following options:

Option 1:

- ENVS 104 - Environmental Science: Global Sustainability (3)

Option 2:

- ENVS 101 - Introduction to Environmental Science (3)
- ENVS 105 - Readings in Environmental Science (1)

**Core Environmental Science Courses** (25 semester hours)

- ENVS 204 - Introduction to Ecosystem Management (3)
- ENVS 204L - Introduction to Ecosystem Management Laboratory (1)
- ENVS 221 - Science and Technology of Pollution Control (3)
- ENVS 221L - Science and Technology of Pollution Control Laboratory (1)
- ENVS 331 - Water Quality (3)
- ENVS 331L - Water Quality Laboratory (1)
- ENVS 340 - Applied Atmospheric Science (3)
- ENVS 492 - Capstone in Environmental Science and Technology (2)
- STAT 200 - Probability and Statistics (3)
- One of the following courses:
  - MATH 146 - Calculus for the Biological Sciences (5)
  - MATH 151 - Calculus I (5)

**Environmental Science Options** (14-15 semester hours)

Complete all courses in one of the following options:

Option 1: Pollution Monitoring and Control:

- ENVS 212 - Environmental Health and Safety (2)
- ENVS 212L - Environmental Health and Safety Laboratory (1)
- ENVS 410 - Environmental Regulatory Compliance (3)
- ENVS 420 - Pollution Investigation and Monitoring (3)
- ENVS 420L - Pollution Investigation and Monitoring Laboratory (1)
- GEOL 111 - Physical Geology (3)
- GEOL 111L - Physical Geology Laboratory (1)

Option 2: Ecosystem Restoration:

- ENVS 312 - Soils and Sustainability (3)
- ENVS 312L - Soils and Sustainability Laboratory (1)
- ENVS 455 - Restoration Ecology (3)
- ENVS 455L - Restoration Ecology Laboratory (1)
- POLS 488 - Environmental Politics (3)
- BIOL 107 - Principles of Plant Biology (3)
- BIOL 107L - Principles of Plant Biology Laboratory (1)

**Restricted Electives (13-15 semester hours)**

Select from the following additional ENVS courses to bring total credits for this section to 57:

- ENVS 212 - Environmental Health and Safety (2)
- ENVS 212L - Environmental Health and Safety Laboratory (1)
- ENVS 278 - Permaculture Design (2)
- ENVS 278 - Permaculture Design Laboratory (2)
- ENVS 301 - Environmental Project Management (2)
- ENVS 312 – Soils and Sustainability (3)
- ENVS 312L – Soils and Sustainability Laboratory (1)
- ENVS 315 - Mined Land Rehabilitation (2)
- ENVS 321 - Environmental Risk Analysis (3)
- GIST 332 - Introduction to Geographic Information Systems (2)
- GIST 332L - Introduction to Geographic Information Systems Laboratory (1)
- ENVS 337 - Stream Biomonitoring (3)
- ENVS 350 - Ecology and Management of Shrublands and Grasslands (3)
- ENVS 350L - Ecology and Management of Shrublands and Grasslands Laboratory (1)
- ENVS 354 - Forest Ecology and Management (3)
- ENVS 360 - Fire Ecology (3)
- ENVS 360L - Fire Ecology Laboratory (1)
- ENVS 370 - Renewable Energy (3)
- ENVS 374 - Sustainable Building (3)
- ENVS 394 - Natural Resources of the West (1)
- ENVS 396 - Topics (1-3)
- ENVS 413 - Environmental Fate and Transport of Contaminants (3)
- ENVS 420 - Pollution Investigation and Monitoring (3)
- ENVS 420L - Pollution Investigation and Monitoring Laboratory (1)
- ENVS 431 - Water and Wastewater Treatment (3)
- ENVS 433 - Restoration of Aquatic Systems (3)
- ENVS 455 - Restoration Ecology (3)
- ENVS 455L - Restoration Ecology Laboratory (1)
- ENVS 460 - Fire Management (3)
- ENVS 460 - Fire Management Laboratory (1)
- ENVS 475 - Experimental Design and Statistical Analysis in Environmental Science (3)
- ENVS 496 - Topics (1-3)
- ENVS 497 - Structured Research (1-3)

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**GENERAL ELECTIVES** (All college level courses appearing on your final transcript, not listed above that will bring your total semester hours to 120 hours. 16-17 semester hours)

- MATH 113 - College Algebra (1)
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## SUGGESTED COURSE SEQUENCING: POLLUTION MONITORING AND CONTROL

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### Freshman Year, Fall Semester: 15 credits

- ENGL 111 - English Composition (3)
- MATH 113 - College Algebra (4)
- ENVS 104 - Environmental Science: Global Sustainability (3)
- Essential Learning - Natural Science with Lab (4)
- KINE 100 - Health and Wellness (1)

### Freshman Year, Spring Semester: 16 credits

- GEOL 111 - Physical Geology (3) and GEOL 111L - Physical Geology Laboratory (1)
  - ENGL 112 - English Composition (3)
  - STAT 200 - Probability and Statistics (3)
  - Essential Learning - Social and Behavioral Science (3)
  - Essential Learning - Natural Science (3)
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### Sophomore Year, Fall Semester: 14 credits

- CHEM 121/121L - Principles of Chemistry and Laboratory (5) or CHEM 131/131L - General Chemistry I and Laboratory (5)
- ENVS 204 - Introduction to Ecosystem Management (3) and ENVS 204L - Intro to Ecosystem Management Laboratory (1)
- Restricted Elective (1)
- Essential Learning - Fine Arts (3)
- KINA Activity (1)

### Sophomore Year, Spring Semester: 16-17 credits

- ENVS 221 - Science and Technology of Pollution Control (3) and ENVS 221L - Pollution Control Laboratory (1)
  - CHEM 132/132L - General Chemistry II and Laboratory (5) or CHEM 123 - Introduction to Environmental Chemistry (4)
  - MATH 146 - Calculus for the Biological Sciences (5) or MATH 151 - Calculus I (5)
  - Essential Learning - Social and Behavioral Sciences (3)
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### Junior Year, Fall Semester: 14 credits

- Restricted Electives (3)
- ENVS 331 - Water Quality (3) and ENVS 331L - Water Quality Laboratory (1)
- Essential Learning - Humanities (3)
- ESSL 200 - Essential Speech (1)
- ESSL 290 - Maverick Milestone (3)

### Junior Year, Spring Semester: 15 credits

- ENVS 212 - Environmental Health and Safety (2) and ENVS 212L - Environmental Health and Safety Laboratory (1)
  - ENVS 340 - Applied Atmospheric Science (3)
  - ENVS 410 - Environmental Regulatory Compliance (3)
  - Restricted Electives (3)
  - Essential Learning - History (3)
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### Senior Year, Fall Semester: 14-15 credits

- Restricted Electives (7)
- Unrestricted Electives (7-8)

### Senior Year, Spring Semester: 15 credits

- ENVS 492 - Capstone in Environmental Science and Technology (2)
  - ENVS 420 - Pollution Investigation/Monitoring (3) and ENVS 420L - Pollution Investigation/Monitoring Laboratory (1)
  - Unrestricted Electives (9)
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## SUGGESTED COURSE SEQUENCING: ECOSYSTEM RESTORATION

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### Freshman Year, Fall Semester: 15 credits

- ENGL 111 - English Composition (3)
- MATH 113 - College Algebra (4)
- ENVS 104 - Environmental Science: Global Sustainability (3)
- Essential Learning - Natural Science with Lab (4)
- KINE 100 - Health and Wellness (1)

### Freshman Year, Spring Semester: 16 credits

- BIOL 107 - Principles of Plant Biology (3) and BIOL 107L - Principles of Plant Biology Laboratory (1)
  - ENGL 112 - English Composition (3)
  - STAT 200 - Probability and Statistics (3)
  - Essential Learning - Social and Behavioral Science (3)
  - Essential Learning - Natural Science (3)
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### Sophomore Year, Fall Semester: 14 credits

- CHEM 121/121L - Principles of Chemistry and Laboratory (5) or CHEM 131/131L - General Chemistry I and Laboratory (5)
- ENVS 204 - Introduction to Ecosystem Management (3) and ENVS 204L - Intro to Ecosystem Management Laboratory (1)
- Restricted Elective (1)
- Essential Learning - Fine Arts (3)
- KINA Activity (1)

### Sophomore Year, Spring Semester: 16-17 credits

- ENVS 221 - Science and Technology of Pollution Control (3) and ENVS 221L - Pollution Control Laboratory (1)
  - CHEM 132/132L - General Chemistry II and Laboratory (5) or CHEM 123 - Introduction to Environmental Chemistry (4)
  - MATH 146 - Calculus for the Biological Sciences (5) or MATH 151 - Calculus I (5)
  - Essential Learning - Social and Behavioral Sciences (3)
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### Junior Year, Fall Semester: 15 credits

- ENVS 312 - Soils and Sustainability (3) and ENVS 312L - Soils and Sustainability Laboratory (1)
- ENVS 331 - Water Quality (3) and ENVS 331L - Water Quality Laboratory (1)
- Essential Learning - Humanities (3)
- ESSL 200 - Essential Speech (1)
- ESSL 290 - Maverick Milestone (3)

### Junior Year, Spring Semester: 14 credits

- Restricted Electives (5)
  - ENVS 340 - Applied Atmospheric Science (3)
  - POLS 488 - Environmental Politics (3)
  - Essential Learning - History (3)
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### Senior Year, Fall Semester: 14-15 credits

- Restricted Electives (7)
- Unrestricted Electives (7-8)

### Senior Year, Spring Semester: 15 credits

- ENVS 492 - Capstone in Environmental Science and Technology (2)
  - ENVS 455 - Restoration Ecology (3) and ENVS 455L - Restoration Ecology Laboratory (1)
  - Unrestricted Electives (9)
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